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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,456	02/15/2002	Karl-Heinz Geier	7239-C2	7945

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EXAMINER

CHANG, AUDREY Y

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 03/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/075,456	GEIER ET AL	
	Examiner	Art Unit	
	Audrey Y. Chang	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2 is/are allowed.
- 6) ☒ Claim(s) 1,3-9 and 11-29 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/15/2002.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Remark

- This Office Action is in response to applicant's amendment filed on December 30, 2003, which has been entered.
- By this amendment, the applicant has amended claims 6-8, 14-15, 17, 23-25 and 28-29.
- Claims 1-29 remain pending in this application.
- The objections to drawings set forth in the previous Office Action dated July 30, 2003 are withdrawn in response to applicant's amendment.
- The objections to the claims set forth in the previous Office Action are withdrawn in response to applicant's amendment.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Claims 1 and 25-29 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification fails to teach adequately how to define or generate a "clock frequency of the human eye" as recited in claim 1. The human eye generally does not have a clock frequency.

The specification and the claims fail to teach that a means for receiving and alternatively blocking a section of the illumination beam is "at or near said entry pupil" wherein the entry pupil is defined by the

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single microscope objective. Figures 6a and 6b show that the means for alternatively blocking the illumination beam CANNOT be near or at the entry pupil defined by the objective, since they are not being placed at same optical axis. It is more likely that the blocking means defines an entry pupil for the microscope system.

3. **Claims 25-29 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification and the claims fail to disclose how could a stereoscopic image of an object be generated in a microscope by simply having a microscopic objective and illumination source, illumination optics. Essential elements such as directing the left eye image of the object and right eye image of the object to the left eye and right eye of an observer respectfully and left eye and right eye ocular or eyepieces are needed for generating stereoscopic image in a microscope system. The amended claim 25 still fails to provide such essential structure since the “images” are not being properly defines and generated.

Claim Objections

4. **Claims 25-29 are objected to because of the following informalities**: The phrase “for guiding the different images” recited in amended claim 25 is confusing and indefinite since it lacks proper antecedent basis from earlier part of the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 1, 3, 9, 16, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Takahashi et al (PN. PN. 5,588,948).**

Reasons for rejection are set forth in the previous Office Action dated July 30, 2003.

7. **Claims 4-7, 11-15, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Takahashi et al as applied to claims 3, 9 and 17 above, and further in view of the patent issued to Takahashi (PN. 5,557,454).**

Reasons for rejection are set forth in the previous Office Action dated July 30, 2003.

8. **Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Takahashi et al (PN. 5,588,948) in view of the patent issued to Takahashi (PN. 5,557,454).**

Takahashi et al teaches a *stereoscopic endoscope* (22) that is comprised of a single objective lens system (5) for receiving imaging light directed from an object and a relay lens system (7) wherein the objective lens system forming an image of the object at the front end of the relay lens section (6). The single objective lens implicitly defines an imaging beam path, an exit pupil and an entrance pupil along a single optical channel. The image is then transmitted to a pupil dividing means (8), which may be a *mechanical shutter* (23) or a *liquid crystal shutter* (23d). The pupil dividing means serves to *alternatively block a section of the imaging beam*, that is to sequentially occlude the imaging light exiting from left and right regions of the lens section (6) and to form left and right perspective images, or stereo

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image pair, on the image plane of an imaging device (25). Takahashi et al teaches that the image device (25) may be a charge couple camera (CCD), and the images may be transmitted to monitors (28 and 29) for displaying and viewing, (please see Figures 3-6 and 10 and columns 4-6 and 8). The stereoscopic endoscope also comprises a controller (27) that generates switching signals to synchronize the switching of the pupil dividing shutter (23) between the blocking positions, and the image beams are transmitted to the frame memory so that when the left and right perspective images are displayed on the monitors they are received by the correct eye respectively. The shutter blocking frequency has to be faster than the flicker frequency of the human eye in order for the stereoscopic illusion to take place. Takahashi et al further teaches that the charge couple camera (25) can be replaced by a *pair of eyepieces*. The eyepieces implicitly serves as the left eye and right eye ocular, which provides stereoscopic observation of the object to the naked eyes of an observer and this gives an *arrangement of a microscope*, (please see column 6, lines 32-36).

Takahashi et al teaches that the objective lens system (5) is a single objective lens system in the sense that the endoscope-microscope arrangement of the Takahashi et al comprises only a single imaging path. But Takahashi et al does not teach explicitly that the objective lens system is a single lens. However to use a single objective lens or to use a lens system comprises more than one lens elements as objective are all very well known to one having ordinary skill in the art. Such modification would then have been an obvious variation to one skilled in the art for the benefit of making the system more compact.

Takahashi et al further teaches that an image forming lens (24) is used to transmit the image from the pupil dividing shutter (23) to the CCD camera (25). The left perspective and right perspective image are then displayed on monitors (28 and 29) for observation and viewing. The monitors (28 and 29) serve as the 3D display device.

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This reference has met all the limitations of the claims with the exception that it does not teach explicitly to have an illuminating optics for illuminating the object however such illumination optics must be inherently included in the cited reference since the object must be illuminated by some sort of light source, even an ambient light, to provide the necessary imaging light for viewing.

This reference has met all the limitations of the claims with the exception that this reference does not teach to include a diaphragm. **Takahashi** ('454) in the same field of endeavor teaches a stereoscopic endoscope having microscopic arrangement wherein a variable diaphragm (45, Figures 7-10) having variable aperture size and positions are used at a position in optical coupled to the exit pupil of the objective lens system for controlling the quality of the stereoscopic images produced and displayed by the endoscope. It would then have been obvious to one skilled in the art to apply the teachings of **Takahashi** ('454) to modify the stereoscopic microscope of **Takahashi et al** ("984) for the benefit of regulating the amount of image light being transmitted for the purpose of controlling the quality of the image produced. **Takahashi** ('454) teaches that the size of the diaphragm may be varied with respect to the dimension of the diaphragm and different types of the diaphragm may be used which implicitly implies the diaphragm may be exchanged with different types of the diaphragm. The aperture shape of the diaphragm can assume circular shape.

9. Claims 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Lucke et al (PN. 5,748,367) in view of the patent issued to Kuo et al (PN. 5,351,152).

The recitations of claims 25-29 fail to give a complete description for an arrangement that enables a stereoscopic viewing, for the reasons stated above.

Lucke et al teaches an illuminating device for a stereo microscope, wherein the microscope comprises an objective lens group (13), and the illuminating device comprises a fiber optics light guide (1) illuminates light via an illuminated field diaphragm (3) with its diameter, therefore size, being

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adjustable, and a deflecting element (11) that changes the illumination angle of the illuminating light, (please see Figure 2 and column 4). Lucke et al teaches that the illuminating beam is deflected via the deflecting element, which therefore generates more than one beams at different illumination angles in an alternative manner via the movement of the deflecting element, but it does not teach explicitly that the different beams are generated by alternatively blocking a section of the beam. Kuo et al in the same field of endeavor teaches a stereoscopic microscope wherein an aperture plate with a plurality of apertures that can be rotated so that part of the illumination beam may be blocked to generate different illuminating beam. It would then have been obvious to one skilled in the art to modify the illumination optics of Lucke to use rotational aperture plate as an alternative means to generate different illumination beams for the benefit of providing different design. Both Lucke and Kuo et al teaches means for guiding the stereo image pair from the object to the eyes of the observer. With regard to claim 26, Lucke et al teaches that the diaphragm takes a circular shape, (please see Figure 39).

Allowable Subject Matter

10. Claim 2 is allowed.
11. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
12. The following is a statement of reasons for the indication of allowable subject matter: of the prior art references considered none has disclosed a stereoscopic microscope with single objective as claimed in the claims that includes DMD mirror arrangement as the blocking means for alternatively blocking a section of the imaging beam as set forth in the claims.

Terminal Disclaimer

13. The terminal disclaimer filed on **December 30, 2003** disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of **US patents 6,348,994 and 5,835,264** has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Arguments

14. Applicant's arguments filed on December 30, 2003 have been fully considered but they are not persuasive. The newly amended claims 25-29 have been fully considered and they are rejected for the reasons stated above.

15. In response to applicant's argument that cited Takahashi teaches a stereoscopic endoscope instead of a stereoscopic microscope is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, both endoscope and microscope are ***optical instruments with objective lens and eyepieces lens*** for observing object with ***magnifying power*** which are operated in essentially the same principles. The endoscope is therefore in the same endeavor of the instant application, namely microscope. Furthermore, applicant's arguments that the endoscope requires "special eyepieces" which therefore different from microscope is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The claims in the application only recite an objective in with regard to the microscope, which therefore does not differentiate it from an endoscope which also comprises objective.

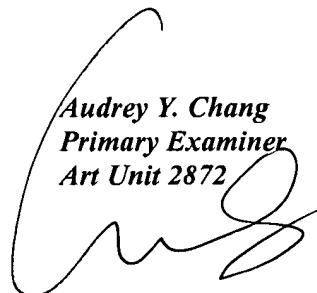
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A. Chang, Ph.D.


Audrey Y. Chang
Primary Examiner
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